ARGONNE NATIONAL LABORATORY-EAST

Application to Modify the Argonne National Laboratory-East (ANL-E) Resource Conservation and Recovery Act Part B Permit (Modification No.4)

Prepared for:

U.S. Department of Energy
9800 South Cass Avenue
Argonne, Illinois 60439

Prepared by:

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Argonne National Laboratory-East
9700 South Cass Avenue
Argonne, Illinois 60439

under Contract W-31-109-ENG-38

September 2000

Application to Modify the Argonne National Laboratory-East (ANL-E) Resource Conservation and Recovery Act (RCRA) Part B Permit Modification No. 4

A. BACKGROUND

The U.S. Department of Energy (DOE) and ANL-E submitted their final RCRA Part B Permit Application to the Illinois Environmental Protection Agency (IEPA) on September 3, 1996 (ANL-E 1996). IEPA issued a RCRA Hazardous Waste Management Part B permit (Log Number: B-75) to DOE and ANL-E on September 30, 1997 (IEPA 1997). The effective date of the permit was November 4, 1997.

The permit has been modified twice. First, on February 8, 1999 (IEPA 1999), IEPA issued a revised permit to include a Class 1 Modification to allow ANL-E to accept the ash from the incineration of ANL-E-generated mixed waste at the DOE-owned Waste Experimental Reduction Facility in Idaho, in the event that it could not be disposed of otherwise.

Second, on August 8, 2000 (IEPA 2000), IEPA issued a revised permit to include Class 1 Modifications to allow ANL-E to:

- use Building 303 to store surplus chemicals.
- update the operating procedures for the Building 308 Alkali Metal Passivation Booth.
- update the RCRA Contingency Plan.

In response to a request that the ANL-E authorized representative be changed, IEPA required a that the form titled *Prior Conduct Certification Evaluation for RCRA Hazardous Waste Facility Personnel* be submitted. The form was submitted on September 6, 2000.

In addition, in September 1998, ANL-E and DOE submitted a third permit modification application to update the RCRA Part B Permit application and request a number of Class 1 modifications. IEPA is reviewing that application.

This fourth application includes requests to modify the permit that are classified as Class 1 and Class 2. The Class 1 modification is needed to:

- change the name of the DOE person that is authorized to sign documents related to the ANL-E RCRA Part B Permit.

The Class 1 permit modification will be implemented to conform with the requirements of 35 Illinois Administrative Code 703.281.

The Class 2 modification is needed to:

- allow DOE and ANL-E to use an existing concrete pad for the storage of solid radioactive waste and solid mixed waste.

The Class 2 permit modification will be implemented to conform with the requirements of 35 Illinois Administrative Code 703.282.

B. SUPPORTING INFORMATION

This section presents supporting information for the proposed permit modifications.

Class 1 Modification

The ANL-E RCRA Part B Permit application was signed by the former DOE Argonne Group Manager, Mr. Timothy S. Crawford, who recently has retired. The current Acting Argonne Group Manager is Robert C. Wunderlich. Mr. Wunderlich will sign future applications and reports related to ANL-E's RCRA Part B Permit for DOE, until a permanent Argonne Group Manager is named. Future correspondence should be addressed to Mr. Wunderlich's attention. Mr. Wunderlich has executed the form titled *Prior Conduct Certification Evaluation Form for RCRA Hazardous Waste Facility Personnel (LPC 372)*, as presented in Appendix A.

Class 2 Modification

An existing concrete pad located near Building 331 (see Figure B-1) is proposed to be used to store solid radioactive waste and solid mixed waste. Only the mixed waste stored at this hazardous waste management unit is pertinent to this Part B permit application, since the radioactive waste is not regulated under RCRA Subtitle C. However, it is noted that the radioactive waste will be managed in a manner that is consistent with the container management practices that are outlined below for the hazardous component of the waste. The solid mixed waste consists of empty, lead shielding containers and containerized (drummed) solid mixed wastes. The waste may exhibit the characteristic of toxicity for metals. The dimensions of the concrete pad are 40 feet by 60 feet (see Figure B-2). Figure B-3 shows other detailed specifications regarding the construction of the pad.

The empty shielding containers, which previously were used for transporting radioactive substances, have different shapes and sizes. The shielding containers are constructed as inner and outer steel cylinders encasing lead shielding material that is 4 to 8 inches thick. The base of each container and the cap also contain 4 to 8 inches of lead. The thickness of the inner and outer steel varies from 1/4-inch to 3/8-inch. The steel casing material has continuous seam welds so the lead is completely contained. Figure B-4 depicts the typical shielding container construction. The drums that will be used are discussed in Section B-1b(2) below.

The number and volume of containers to be stored on the concrete pad will not exceed the space limitations of the pad. The wide variety of shapes, volumes, and sizes of the con-

tainers makes it difficult to provide an exact determination of the number and total volume to be stored on the concrete pad. The estimated total volume is 8,000 gallons of solid mixed waste. Shielding containers will remain in storage until a permitted treatment storage and disposal facility for mixed waste is available.

The following section is formatted to be consistent with Section D-1 of the IEPA's *RCRA Part B permit Application Decision Guide* (IEPA 1990).

B-1 CONTAINERS

B-1a Containers with Free Liquids

No containers with free liquids will be stored on this pad. Therefore, requirements for a secondary containment system as specified in 35 IAC 724.275 are not applicable. The floor of the pad is sloped from the high point and control joint in the center of the pad (see Figure B-2), so that there will be no standing water.

B-1b Containers Without Free Liquids

B-1b(1) Test for Free Liquids

Because the empty shielding containers are constructed of solid steel and lead, a test for free liquids is not applicable. To establish that the contents of the drums contain no free liquids, those containers storing stabilized sludge will be evaluated by the Paint Filter Test [U.S. Environmental Protection Agency (EPA) Method 9095, SW-846] described in Appendix C-1 of the ANL-E RCRA Part B Permit Application (ANL-E August 1996).

B-1b(2) Description of Containers

The Building 331 Concrete Storage Pad will be used for storing lead shielding containers, as well as drums of solid mixed waste such as evaporator bottoms. The following information is applicable to drums used to store hazardous waste:

- The construction materials, dimensions, usable volumes, and the U.S. Department of Transportation (DOT) specifications for these drums are summarized in Table B-1.

- Selection of compatible containers and liners are based on DOT specifications as described in 49 CFR 173, or manufacturer's specifications when no DOT specifications exist.

- The drums are labeled to indicate the accumulation start date and the correct EPA waste number. DOT shipping labels, as required by DOT specifications in 49 CFR 172, Subpart D and Subpart E, also are attached to each drum before shipment off site.

Table B-1

Summary Description of Typical Hazardous Waste Storage Containers at ANL-E[1]

Volume (gallons)	Container Type/Construction Material	Suggested Volume of liquid waste in lab pack drum (gallons)[2]	Dimensions (inches high x inches in diameter)	DOT Specifications (49 CRF 173)
30	plastic drum, bung top	NA	29.25 x 18.5	1H1
30	unlined steel drum, bung top	NA	29.25 x 18.5	1A1
30	unlined steel drum, open head	10	29.25 x 18.5	6HA2
30	steel, lined with polyethylene[3]	10	29.25 x 18.5	1A2
30	steel, bung top, polyethylene liners if needed	NA	29.25 x 18.5	6HA1
30	stainless steel grade 304 or 316, bung top	NA	29.25 x 18.5	1A1
55	plastic drum, bung top	NA	35.25 x 24	1A1
55	unlined steel drum, bung top	NA	35.25 x 24	1H1
55	unlined steel drum, open head	20	35.25 x 24	1A2
55	steel, lined with polyethylene	20	35.25 x 24	6HA2
55	steel, bung top, polyethylene liners if needed	NA	35.25 x 24	6HA1
55	stainless steel grade 304 or 316, bung top	NA	35.25 x 24	1A1
329	carbon steel, B-12 box	NA	28h x 47w x 73l	strong tight container
748	carbon steel, B-25 box	NA	52h x 47w x 73l	strong tight container

1 Other container types or bottles may be used to store wastes. These containers may include original containers of discarded or off-specification commercial chemical products or those used by the Laboratory's onsite generators to hold small volumes of waste. See Section D0-1a(1), Description of Containers.

2 ANL-E's general volume guideline for holding liquid wastes.

3 Polyethylene liner has a thickness of .0625 inch.

NA - Not Applicable

B-1b(3) Container Management Practices

The general container management practices described in Section D0-1a(2) of the ANL-E RCRA Part B Permit Application (ANL-E August 1996) apply to the drums stored on the pad. Drums are protected from precipitation by use of drum covers.

The shielding containers stored on the concrete pad are uncontainerized hazardous waste and are not used to store or contain hazardous waste. As solid hazardous wastes, there is no potential for rupture or leakage of the shielding containers. The shielding containers are transported across the pad by a truck with a lift gate or hydraulic hoist. Aisle space is maintained so that wastes can be accessed for operational and inspection purposes. The shielding containers are not stacked due to their variety of shapes.

The storage area will be inspected weekly to identify promptly any deteriorated containers caused by corrosion or other factors. The inspection form that will be used is presented in Appendix C.

D14-1b(4) Container Storage Area Drainage

There are no drains on the storage pad. The base is sloped to drain away rainwater. However, shielding containers and drummed storage containers are elevated (by wooden stringers) approximately 1.5 inches above the pad to keep them from coming in contact with any standing water.

REFERENCES

Argonne National Laboratory-East, *Revision II (FINAL) to the Argonne National Laboratory-East RCRA Part B Permit Application*, Argonne, Illinois, August 1996.

IEPA letter, J. L. Munie, to T. S. Crawford, DOE, and R. Bouie, ANL-E, Re: 0438020002—DuPage County, Argonne National Laboratory-East, RCRA Part B Permit, Log No. B-75-M-3, Class 1 Modifications, August 8, 2000.

IEPA letter, J. L. Munie, to T. S. Crawford, DOE, and R. J. Teunis, ANL-E, Re: 0438020002—DuPage County, Argonne National Laboratory-East, RCRA Part B Permit, Log No. B-75-M-2, Class 1 Modification, February 8, 1999.

IEPA, *RCRA Part B Permit Application Decision Guide*, Springfield, Illinois, December 1990.

APPENDIX A

Prior Conduct Certification Evaluation for RCRA Hazardous Waste Facility Personnel

(Form LPC 372)

ILLINOIS ENVIRONMENTAL PROTECTION AGENCY

1021 NORTH GRAND AVENUE EAST, P.O. BOX 19276, SPRINGFIELD, ILLINOIS 62794-9276

THOMAS V. SKINNER, DIRECTOR

PRIOR CONDUCT CERTIFICATION EVALUATION FOR RCRA HAZARDOUS WASTE FACILITY PERSONNEL

Owner/Operator Name: Robert C. Wunderlich Social Security No. 169-40-3022

Address: 9800 S. Cass Avenue

Argonne, IL 60439

Site Name: Argonne National Laboratory-East Site Code IL3890008946

I. Other hazardous waste sites owned or operated (anywhere) at anytime. (If more than one, attach the name, address and nature of each site.)

Site Name: Not Applicable Site Code _____

Site Address: _____

_____

II. All of the following questions need to be answered. If the answer to any of the following is affirmative attach a copy of any final administrative or judicial determination.

1) Have you ever violated any federal, state, or local laws, regulations or ordinances governing the operation of any waste disposal site?	YES ☐	NO ☒
2) Have you ever been convicted in Illinois or any other state of any crime which is a felony under Illinois law or been convicted of a felony in a federal court?	YES ☐	NO ☒
3) Have you ever been proven to have shown gross carelessness in the handling storing, processing, transporting or disposing of any hazardous waste in any state?	YES ☐	NO ☒

III. Is there any administrative or judicial proceeding, which is still pending, which:

1) Could result in a determination of the type described in section II above; or	YES ☐	NO ☒
2) Could result in the reversal of any administrative or judicial determination provided in response to section II above.	YES ☐	NO ☒

If the answer to any of the above is yes provide a description including the name of the Agency or Court, title, docket No. and status.

CERTIFICATION STATEMENT

I certify under penalty of law that the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

This Agency is authorized to require this information under Illinois Revised Statutes, 1979, Chapter 111 ½, Section 1039. Disclosure of this information is required under that Section. Failure to do so may prevent this form from being processed and could result in your application being denied. This form has been approved by the Forms Management Center.

R W Wunderlich

Signature of Applicant

Acting Argonne Group Manager

Title

9/15/00

Date

For Agency Use Only

Log No. PCC- _____ Date Received: _____

Final Action _____ Date: _____

IL 532 1903

LPC 372 Rev. Jun-99

LE:jab/992202p.doc

APPENDIX B

FIGURES

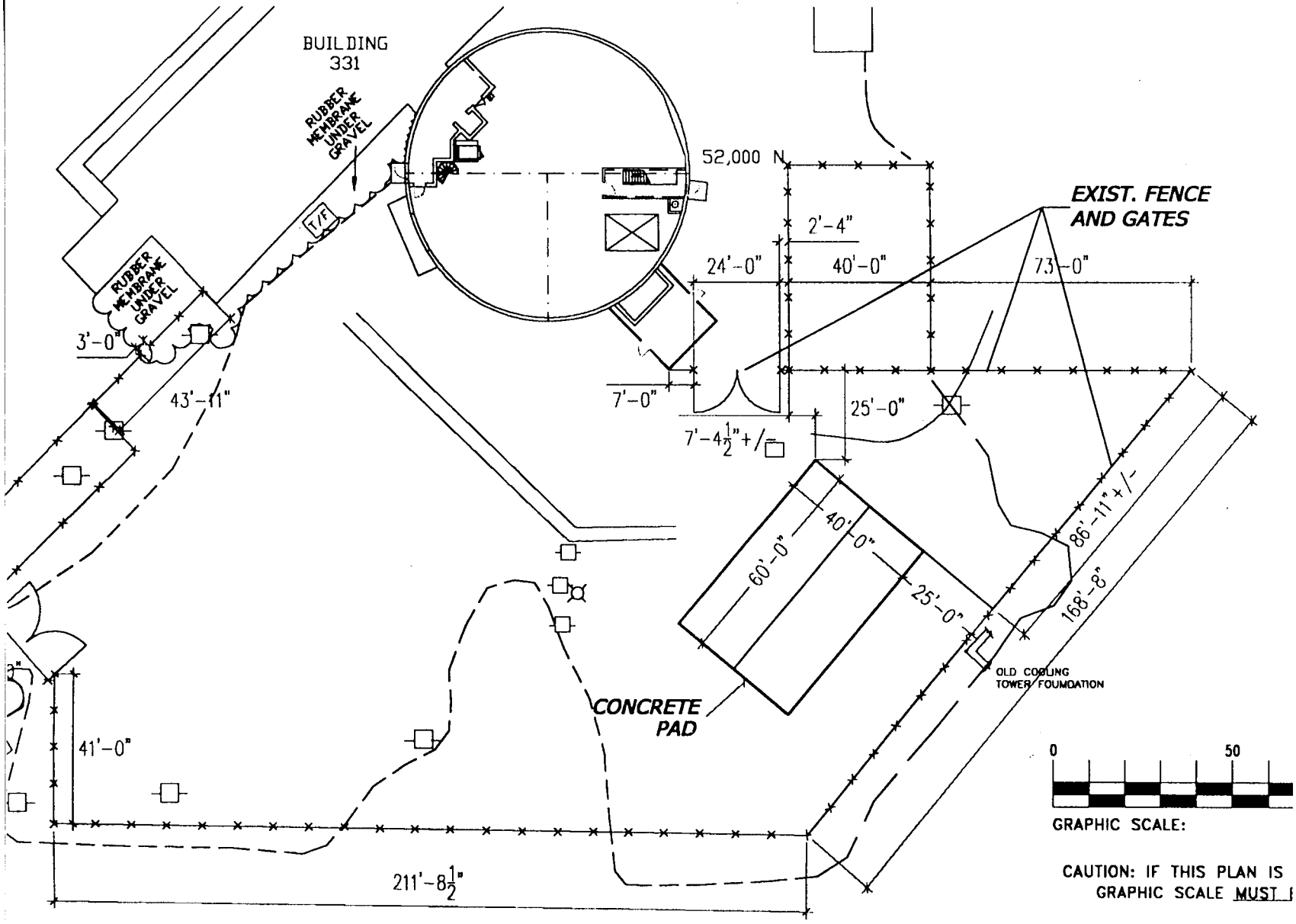
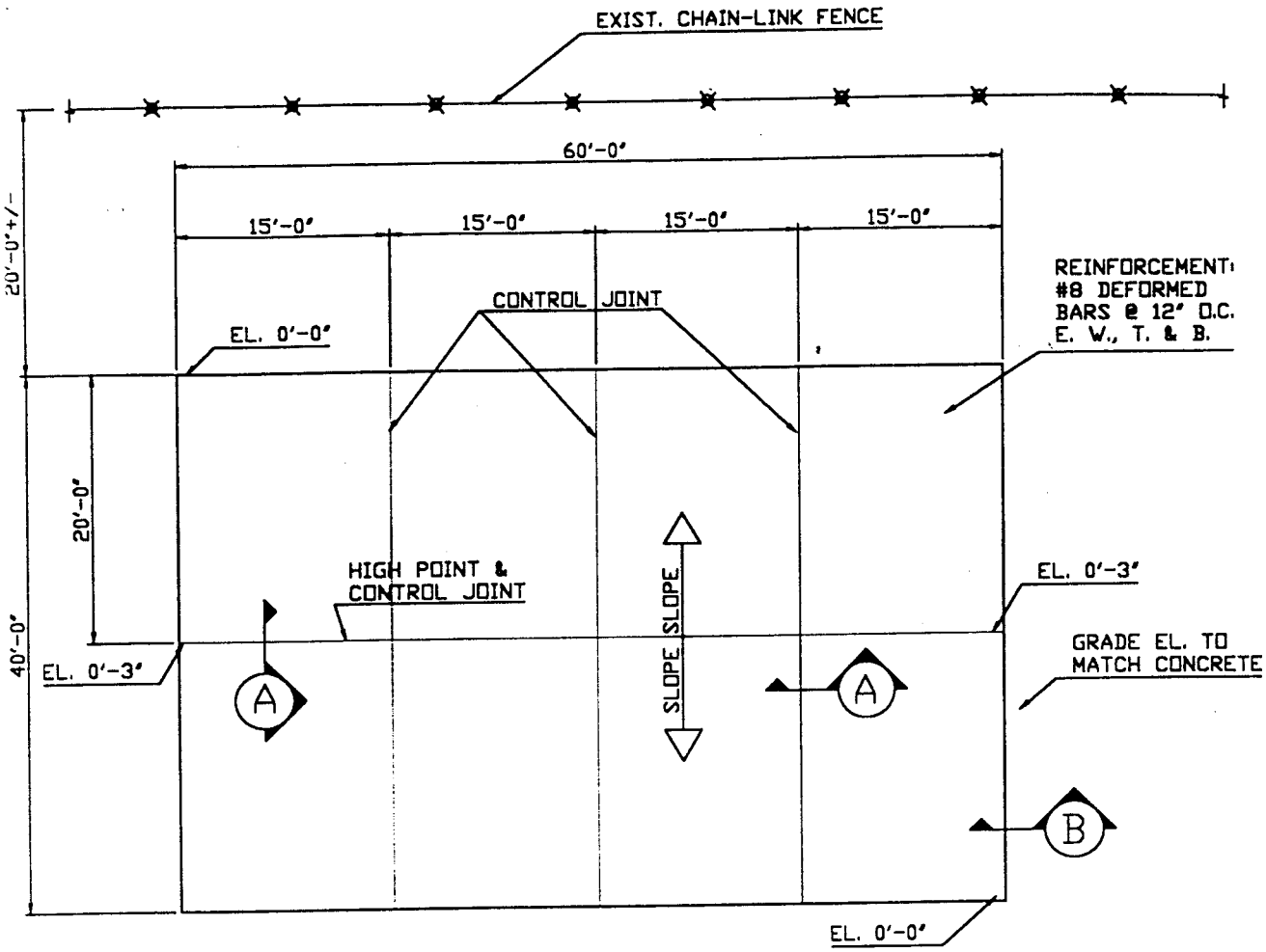


Figure B-1 Concrete Pad Location



CONCRETE PAD PLAN

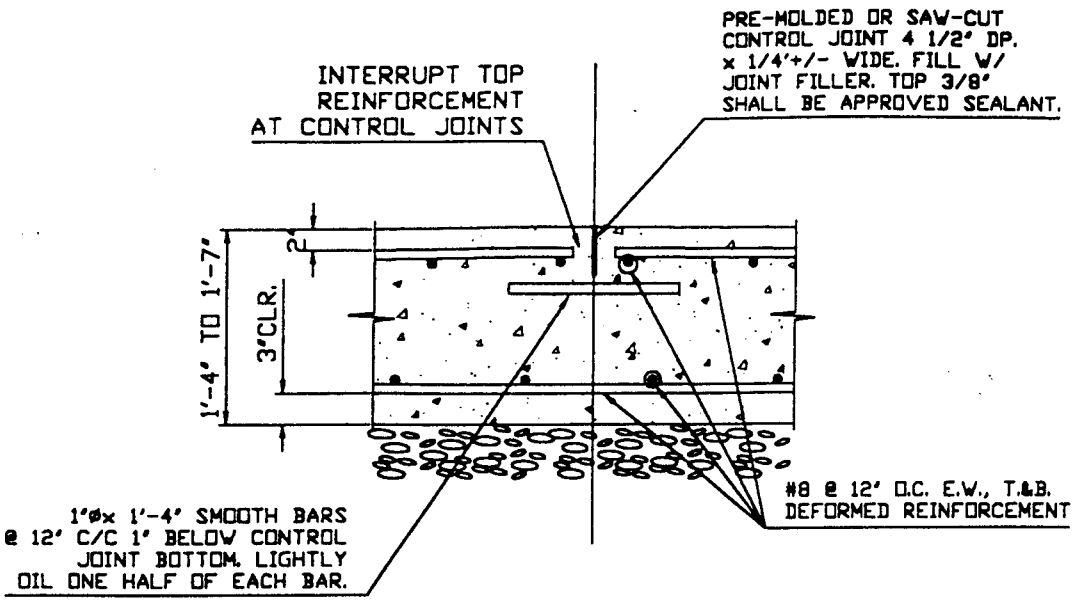
CONSTRUCTION NOTES:

- CONCRETE SHALL BE NORMAL WEIGHT CONCRETE WITH A 28-DAY COMPRESSIVE STRENGTH OF 4000 PSI MIN..
- CEMENT SHALL BE PORTLAND CEMENT POWDER IN ACCORDANCE WITH ASTM C150 TYPE IA. REPLACE 20% OF CEMENT WITH FLY ASH CONFORMING TO ASTM C 618.
- AGGREGATES SHALL BE IN ACCORDANCE WITH ASTM C33. COARSE AGGREGATE MAX. SIZE SHALL BE 1 1/2".
- WATER SHALL BE POTABLE.
- REINFORCING STEEL SHALL BE NEW BILLET STEEL BAR IN ACCORDANCE WITH ASTM A615 GR. 60.
- ADMIXTURES SHALL BE IN ACCORDANCE WITH ASTM C494 OR ASTM C1017.
- ALL HORIZONTAL SURFACES SHALL BE TROWEL FINISHED

SUBMIT FOR APPROVAL: CONCRETE DESIGN MIX, CONTROL JOINT FILLER AND SEALANT AND ADMIXTURE SPEC'S.

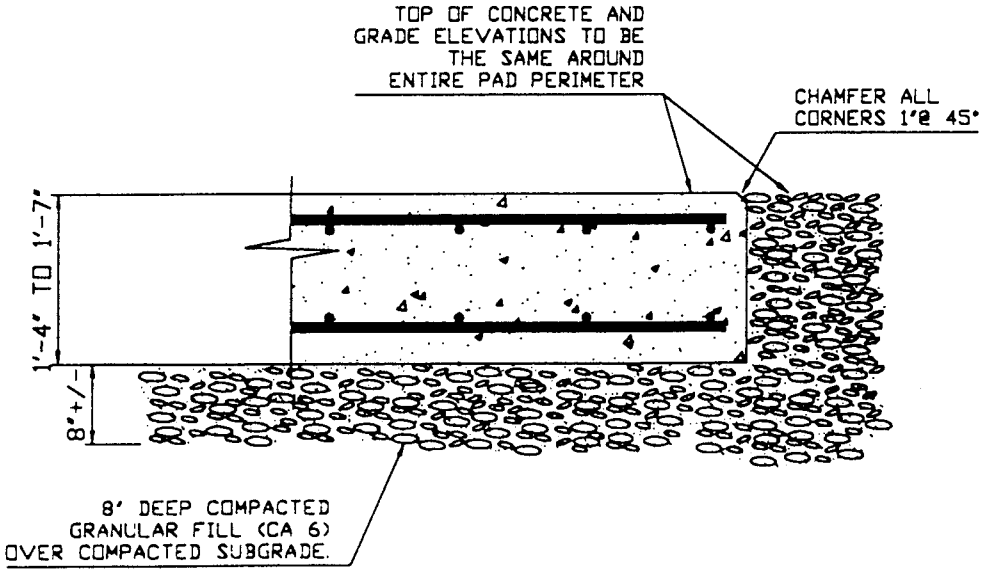
SKETCH NO: SK-01

Figure B-2 Concrete Pad Plan



SECTION A

(DETAIL AT CONTROL JOINT)



SECTION B

SKETCH NO: SK-02

Figure B-3 Concrete Pad Specifications

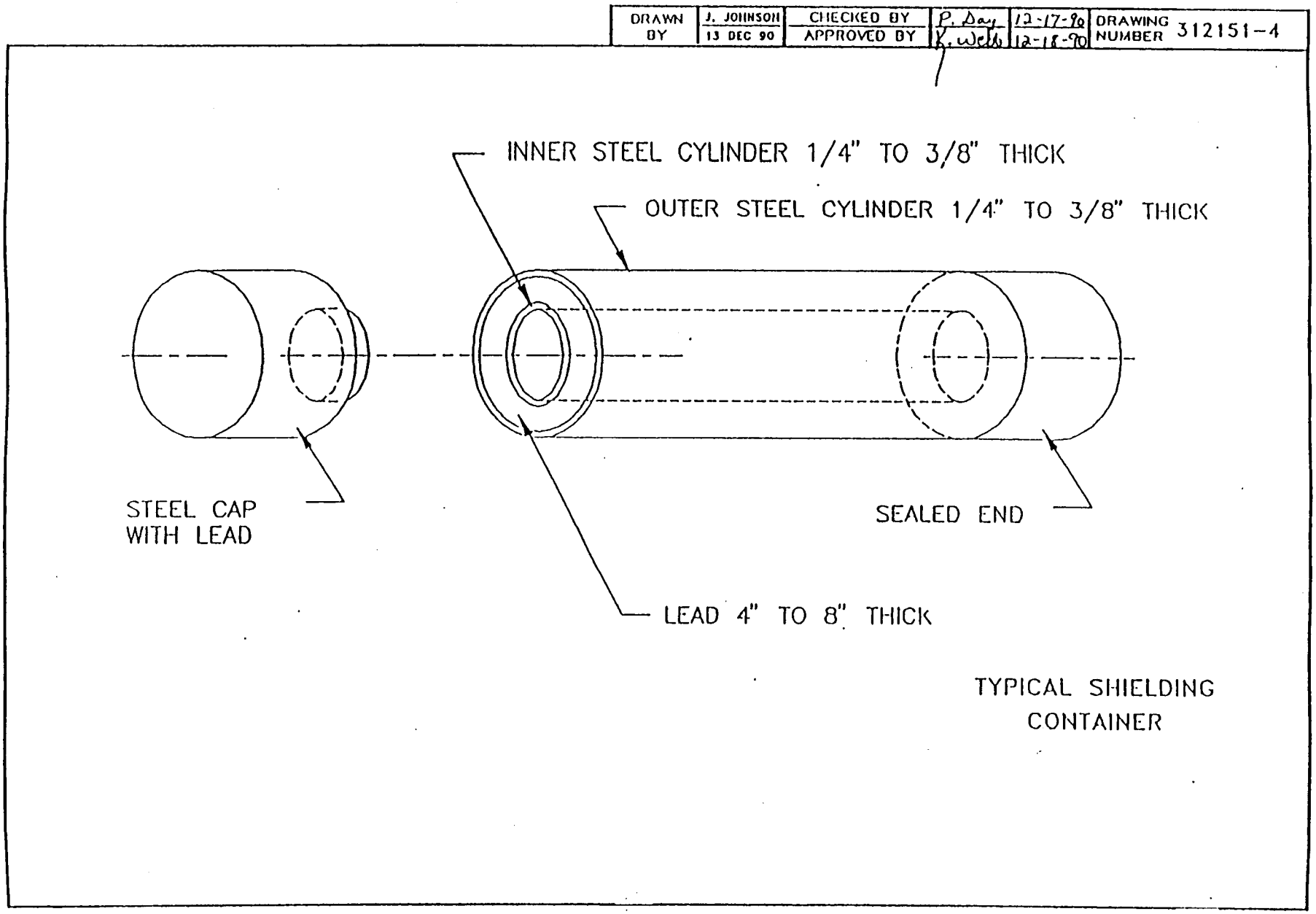


Figure B-4 Typical Shielding Container Construction

APPENDIX C

INSPECTION FORM

Inspection of Hazardous/Mixed Waste Containers in Buildings 202, 303, 317 PAD, 325C, 329, 331, and 374A

Inspect the storage area for any of the conditions listed below. Write in N for No or Y for Yes in the box for each condition and facility. Sign the form and notify the Foreman of any Yes entries. The Foreman must describe the problem and corrective action on the next page and sign the form when corrective actions have been completed. Refer to WM Operating Procedures Manual Chapter 2, as applicable, for additional Information.

Inspection Date:_____ Inspector's Name:_____ Reviewed By:_____

Item	Inspections	Bldg. 303					Bldg. 331 Levels				Bldg. 325C	Bldg. 329	Bldg. 374A	Bldg. 202	Bldg. 331 PAD
		Rm. 105	Rm. 106	Rm. 107	Rm. 108	Rm. 110	L1	L 2	L3	L4					
1	Any liquids on floor?														
2	Any cracks, gaps, or deterioration in the floor or containment system?														
3	Any problems with phones, alarms, or emergency communication system?														
4	Any emergency lights or exit signs not in place?														
5	Any problem with fire control, fire extinguisher, spill control, or decontamination equipment?														
6	Have any spill control stations not been inspected within the last month?														
7	Are sources of ignition or reaction near ignitable or reactive waste?														
8	Are strong odors present indicating a spill or ventilation problem?														
9	Does aisle space differ from the posted diagram?														
10	Are any containers not on pallets, stringers, etc.?														
11	Are walkways or doorways obstructed?														
12	Are any containers disarranged, inaccessible, or deteriorated?														
13	Is unacceptable material present or is the area dirty/disorderly?														
14	Are any containers open or missing labels?														
15	Any labels which are illegible, lacking waste codes, or accumulation start dates?														
16	Are any incompatible wastes stored next to each other?														
17	Are any drums not positioned to prevent rupture or leakage?														
18	Are any drums stored near berms that allow for mixing of incompatibles?														
19	Are stacked 55-gal drums or larger containers not separated by a pallet or other dunnage?														
20	Are drums with free liquids stacked more than 2-high?														
21	Are 55-gal drums of solid waste stacked more than 3-high?														
22	Are waste containers containing flammable liquids stacked more than one-high?														
23	Are any nonhazardous wastes not readily identifiable or separated from hazardous wastes?														
24	Do unauthorized personnel have access to the waste material (Is the area unsecure, unlocked, etc.)?														

- COMMENTS -

DATE	TIME	ITEM	IRREGULARITY AND CORRECTIVE ACTION	SIGNATURE & DATE OF ACTION
				Workman
				Foreman
				Workman
				Foreman
				Workman
				Foreman
				Workman
				Foreman
				Workman
				Foreman
				Workman
				Foreman